Date: Wed, 30 Mar 94 04:30:05 PST
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V94 #345
To: Info-Hams

Info-Hams Digest Wed, 30 Mar 94 Volume 94 : Issue 345

Today's Topics:
10M indoor problem.
CB Power meter
FT-530 MOTD (Measurement of the Day -- Intermod!
RF and AF speech processors. Was: FT-990 vs TS-850

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 29 Mar 94 03:58:59 GMT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!news.moneng.mei.com!uwm.edu!
reuter.cse.ogi.edu!netnews.nwnet.net!bach.seattleu.edu!quick!ole!rwing!eskimo!
wrt@network.ucsd.edu
Subject: 10M indoor problem.
To: info-hams@ucsd.edu

In article <CnDL5M.sC@gdss.grumman.com>, <higniro@gdss.grumman.com>
wrote:
>In article <1994Mar27.181416.165@news.unr.edu> destree@unr.edu (Louis
Destree) writes:
>> I recently bought a HTX-100 (no equipment flames please...buying
>>the FT-990 would keep me from continuing school), and have set it up
with
>>a "V" type 1/2 wave indoor antenna. I have not been able to talk to
>>anyone from my apartment yet. However, I have had good results (when
the
>>band is in) from a measly 1/4 wave mag mount on my car.
>>

>> The building I live in is made of stucco, with (I'm reasonably
>>sure) chicken wire in the walls. Most stucco buildings I've seen have

>>this wire in the walls. I am curious if the wire is acting as an
>>attenuator. If anyone has had a similar experience, let me know.
>>
>> Yes, it is possible for me to put the antenna outside. However,
>>rather than having people lining up at my door complaining of TVI, I
>>wanted to keep everything indoors.
>>   Thanks!
>>   Louis
>>
>>--
>>Louis A. Destree   University of
Nevada, Reno
>>destree@equinox.unr.edu <> destree@equinox.bitnet Electrical
Engineering
>>Amateur Radio: N7XNX (General Class)   Bike: 1980 Honda
CB750C
>>   "When things go from bad to worse, the cycle will repeat itself!"
>
>
>The trick to TVI complaints from neighbors is to put up the external
>antenna and not operate for 30 days or so. This will weed out the true
>TVI problems and problem neighbors......
>
>Rod - KB3MK

Chicken wire is a RF killer for sure. KB3MK's suggestion is a good one,
but second best is an attic antenna (above the chicken wire!). A 10
meter dipole will fit easily and work like a charm. Just keep it away
from anything metal and if there are phone wires, etc, try to run it ant
a 90 degree angle to them if possible. I worked DXCC with 100 watts and
an attic antenna. Have fun!

73 es gl

Bill, W7LZP

Date: 30 Mar 94 07:30:07 GMT
From: dog.ee.lbl.gov!agate!howland.reston.ans.net!usc!crash!
mauricio@ucbvax.berkeley.edu
Subject: CB Power meter
To: info-hams@ucsd.edu

Hello everyone, I have a question concernong measuring power output from
a ramsy FM-10, I have a RADIO SHACK CB Power meter 3 - 30 mhz(its what it
said on the box), and i just want to know if hooking this up to my fm-10
will give me an accurate power reading or not, if not how can i convert
this reading to that of what i want? The meter goes between the Xmiter
and the antenna. Any help would be appreciated.

thanx
mauricio@crash.cts.com

Date: 29 Mar 94 02:58:46 GMT
From: dog.ee.lbl.gov!agate!kabuki.EECS.Berkeley.EDU!kennish@ucbvax.berkeley.edu
Subject: FT-530 MOTD (Measurement of the Day -- Intermod!
To: info-hams@ucsd.edu

OK, UHF measurements for sensitivity and intermod....

Raw F3E sensitivity (opens squelch set at threshold):

UHF receiver (right side):

Freq (MHz) Pin (dBm)

300 -83
315 -96
330 -105
345 -111
360 -117
375 -122
390 -122
405 -121
430 -122
445 -122
460 -120
475 -119
490 -115
500 -114

VHF receiver (left side):

PLL does not lock for 300 MHz:

Freq (MHz) Pin (dBm)

300 x

315 -74
330 -74
345 -77
360 -71
375 -84
390 -100
405 -100
430 -118
445 -122
460 -115
475 -105
490 -104
500 -104

TTID (Twin Tone Intermod)

f1 = 445 MHz, f2 = 446 MHz, tune 447 MHz for 3rd IM:

breaks squelch at -66 dBm on UHF side, -69 dBm on VHF side.

f1 = 475 MHz, f2 = 460 MHz, tune 445 MHz for 3rd IM:

breaks squelch at -59 dBm. NO VHF side measurement (sorry).

What this means: For best IM rejection, listen to UHF on the VHF side! As advertised in the manual, cross band RX has a narrower range, and hence better out of ham band IM rejection. Didn't test this on the bench, sorry, but remember that 1 dB of RF attenuation drops the 3rd IM products by 3dB......

More numbers when I have time, next will be VHF sensitivity and IM rejection, followed by UHF+ (800 MHz) measurements.

People that are dying for a particular measurement can mail me and I will try to set it up.

-Ken

p.s for those that must know, my FT-530 has the Jumper 13 mods done, and the serial number begins with 3D131...

Date: Tue, 29 Mar 1994 14:34:44 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!
europa.eng.gtefsd.com!emory!wa4mei!ke4zv!gary@network.ucsd.edu
Subject: RF and AF speech processors. Was: FT-990 vs TS-850
To: info-hams@ucsd.edu

In article <CnE4xu.I03@srgenprp.sr.hp.com> alanb@sr.hp.com (Alan Bloom) writes:
>Gary Coffman (gary@ke4zv.atl.ga.us) wrote:
>: In article <Cn8Los.3Ln@srgenprp.sr.hp.com> alanb@sr.hp.com (Alan Bloom) writes:
>: >Gary Coffman (gary@ke4zv.atl.ga.us) wrote:
>: >
>: >: Phfffft! The phase flatness through the audio phase shift networks
>: >: used in amateur phasing SSB rigs was much worse than any phase
>: >: distortion in a filter rig. The audio phasing network had to cover
>: >: octaves while the crystal filter only has to work over a tiny fraction
>: >: of an octave.
>: >
>: >Not true. A phasing-type SSB generator specifically depends on a
>: >90 degree phase difference between the two channels. If the phase
>: >flatness were bad, you would get terrible unwanted sideband supression.
>
>: No. Phasing exciters depend on *quadrature* at a given frequency to
>: achieve SSB.
>
>*Sigh* Here we go again...
>
>"Quadrature" means exactly what I said above, a 90 degree phase difference.

I know that. I'm not arguing with you, just introducing an alternate
term for the I and Q channel phase relationship. Where I am arguing
with you is on a slightly subtle point. See below.

>: There must be a net 90 degree difference *at any given
>: frequency*, but the phase at say 300 Hz vis 3000 Hz is irrelevant
>: to the SSB generation, but not to the sound.
>
>True, but the way 90-degree phase shift networks work is to generate
>two signals with phases that ramp linearly with frequency, but always
>90 degrees out of phase. If the ramps weren't smooth, the phase
>difference wouldn't be 90 degrees.

Now this is where we differ. What's important to phasing SSB is that
I - Q = 90 degrees at each given frequency. You can have that with
an irregular frequency response as easily as you can with a smooth
declining ramp. What I'm talking about is the phase relationship
between different frequency components of the waveform. Let's assume that
we have two frequencies X and Y. They will have a phase relationship at
input defined as,

X(t) - Y(t) = K(t)

Now if we put this through a transmission media, a blackbox
network we'll call B, then the following condition must apply
if the phase relationship of the complex waveform is to be
maintained.

B(X)(t) - B(Y)(t) = K(t)

But that's not the response we get with a first order smooth
RC network with a declining linear phase delay versus frequency.
I and Q have to have a 90 degree difference, but that can be
generated a number of different ways. We can add delay in one
branch only, so I' = I and Q' = Q + 90. Or we can use lead/lag
networks so that I' = I + 45 and Q' = Q - 45. Or any mixture
in between. All the SSB phasing network cares about is that
there's quadrature at each given frequency. How each frequency
gets quadrature is irrelevant to the phasing exciter, but it's
not irrelevant to the resulting differential phase between two
frequency components of the input.

>: Ask yourself how many
>: milliseconds is a 90 degree phase delay at 300 Hz, then ask yourself
>: how many at 3000 Hz. ...
>
>That's why there is less phase shift at 300 Hz than 3000 Hz (phase ramps
>linearly with frequency, see above.) Linear phase = constant group delay.

I don't see what you're saying here. You need quadrature at every different
frequency, at 300 Hz and at 3000 Hz. The phase shift has to be the *same*
at every frequency (90 degrees), but that means the *delay* declines with
increasing frequency since it takes less delay to get 90 degrees of phase
shift at 3000 Hz than it does at 300 Hz. In other words, the high frequency
components start to outrun the low frequency components as they go through
the network because they suffer less delay. That can be seen in a television
system as chroma/luminance misregistration, also known as differential
phase distortion. Such delay characteristics aren't easily visible in
complex audio waveforms with ordinary scopes, but it certainly can be
heard. That's the click-boom effect I mentioned in the first post where
a percussive strike's high frequency components have outrun the low
frequency components.

>: >Same thing with amplitude flatness. The phase shift network's two
>: >channels must be matched to within a fraction of a dB to get good sideband
>: >suppression.
>
>: Same thing with amplitude flatness. The amplitude has to match *at

>: a given frequency* ...
>
>Again, the way to get amplitude matching is to make both channels flat.

It's *a* way to do that, but it's not necessary, or likely in real
circuits. All that's necessary for the SSB phasing exciter is that
I and Q have the same amplitude at any given frequency. There could
be many db of amplitude difference between two different frequencies
in either the I or Q channel as long as the same difference exists
in the complementary channel at that frequency. In other words, the
bandpass amplitude response could be very lumpy as long as the lumps
in both I and Q match. In fact, with a first order RC network, the
response is going to change by 3 db per octave.

>: >A typical SSB crystal filter has a couple dB peak-to-peak ripple across
>: >the passband with similar ripples in the group delay. It is easy to
>: >do much better than that with a phasing-type exciter.
>
>: How much time is a few degrees of phase shift at 9 MHz? How much effect
>: does that have on a 300 Hz waveform? One 9 millionth of a second is a
>: mighty small phase shift at 300 Hz.
>
>Doesn't matter -- the delay through a filter depends on the bandwidth,
>not the center frequency. For example, if you built a 9 MHz crystal
>filter with a fraction of a Hz bandwidth, you would have SECONDS of
>delay through the filter. A 9 MHz SSB filter will have similar group
>delay as an audio filter of similar bandwidth and rolloff characteristics.

I've been scratching my head over this. Since the percentage bandwidth at
9 MHz is so small, the Q has to be much higher which translates into more
filter ringing than in the very broad percentage bandwidth AF delay network.
But it seems to me that the differential delay of the lower Q audio filter
would be greater since the delta time span for a 90 degree phase shift is so
much greater for a 5 octave span than for a fraction of an octave span.
Perhaps they equate to the same percentage distortion, but is it the same
kind of distortion?

Gary
--

Gary Coffman KE4ZV | You make it, | gatech!wa4mei!ke4zv!gary
Destructive Testing Systems | we break it. | uunet!rsiatl!ke4zv!gary
534 Shannon Way | Guaranteed! | emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244 | |

Date: Tue, 29 Mar 1994 14:39:25 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!

europa.eng.gtefsd.com!emory!wa4mei!ke4zv!gary@network.ucsd.edu
To: info-hams@ucsd.edu

References <Cn15pI.L7H@news.Hawaii.Edu>, <2n7901$6n4@apple.com>,
<CnECJu.2L0@news.Hawaii.Edu>
Reply-To : gary@ke4zv.UUCP (Gary Coffman)
Subject : Re: 1x1 Callsigns?

In article <CnECJu.2L0@news.Hawaii.Edu> jherman@uhunix3.uhcc.Hawaii.Edu (Jeffrey
Herman) writes:
>
>Kok: Know who first used `iff' in the literature? Hint: He used to be
>Chairman of the U.H. Math Dept. (didn't stay long, though...) and he
>is quite famous. [VERY big hint: his intials are P.H.]

PAUL HARVEY used to be chairman of the UH math department???

Gary

:-)

--
Gary Coffman KE4ZV | You make it, | gatech!wa4mei!ke4zv!gary
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End of Info-Hams Digest V94 #345
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